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November 4, 1993

William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

Re: PP Docket No. 93-253 Competitive Bidding

Dear Mr. Caton:

On November 4, 1993, E.Y. Snowden and Jim Tuthill, from Pacific Bell, and Paul Milgrom of Cornerstone Research met with David Reed, Evan Kwerel, John Williams, Jonathan Levy and Marc Martin of the Office of Plans and Policy regarding several issues in the subject proceeding. They distributed the attached written material.

I am filing two copies of this letter and its attachment in accordance with Section 1.1206(a) of the Commission's rules. Please contact me if you have any questions concerning this matter.

Sincerely,

William F. Adler

Attachment

CC (w/o attachment):
David Reed
Evan Kwerel
John Williams
Jonathan Levy
Marc Martin

No. of Copies rec'd 0+1
List ABCDE

PCS Spectrum Auction Design

Presentation by Paul Milgrom
on Behalf of Pacific Bell
and Nevada Bell

Cornerstone Research
November 4, 1993

Key Points

1. The goal of the auction rule should be to award licenses to the bidders that value them most highly.

2. The proposed two-part design with sequential oral bidding for individual licenses and sealed combination bids fails to achieve that objective and is biased toward the combination bidders.

3. A design using simultaneous auctions of all licenses is feasible, unbiased and better promotes the goal of assigning licenses to the highest-value bidders.

Licenses Should Be Awarded to the Highest-Value Bidders

The goal of the auction rule should be to award licenses to the bidders that value them most highly.

- Due allowance must be made for economies of scale and scope.

- The highest-value bidders will be most likely to:
  - introduce valuable new services
  - deploy them quickly
  - use spectrum efficiently and intensively

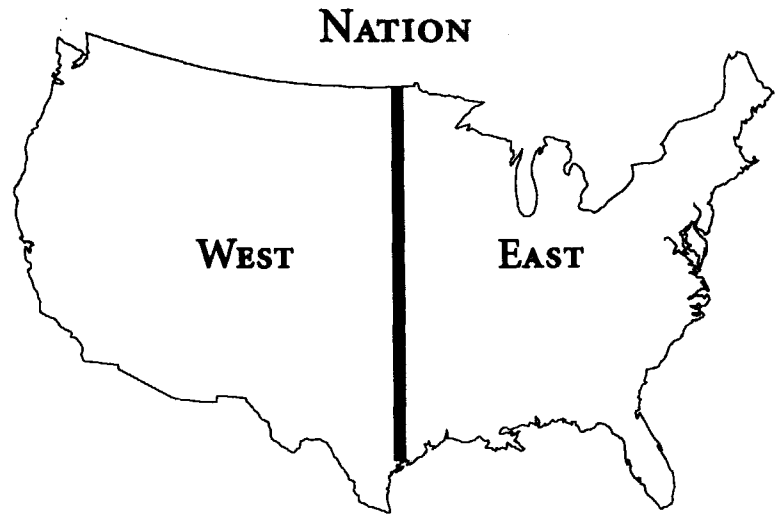
- The other objectives of the Act are better promoted by instruments other than the auction rule, such as:
  - set asides and financing arrangements for designated entities
  - build-out requirements
  - limits on number of licenses owned

The Auction Design Proposed in the NPRM Can Be Improved

The proposed two-part design with sequential oral bidding for individual licenses and sealed combination bids fails to achieve the objective of awarding licenses to the bidders that value them most highly.

- It creates a bias in favor of the combination bidders.
- It creates unnecessary difficulties for those seeking to assemble regional networks.
- The following illustrations show that such an auction:
  - favors combination bidders and nationwide consortia
  - may not award licenses to bidders that value them most highly

FIGURE 1



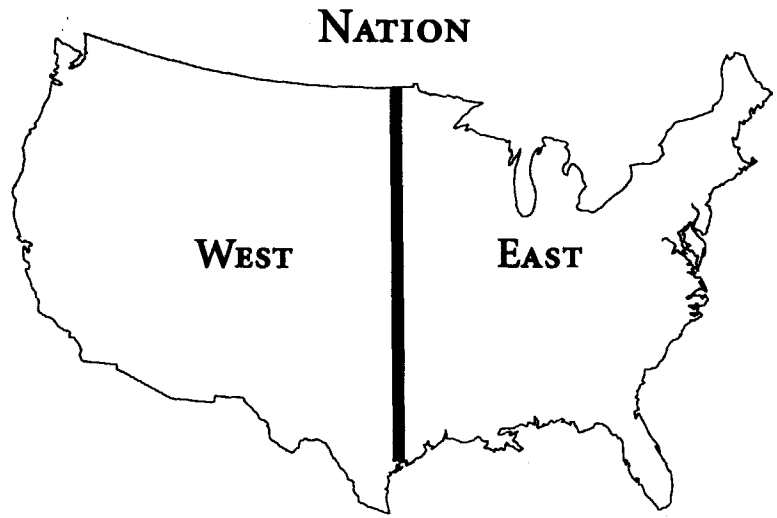
West		East		Nation = West + East	
Regional Bidder	Maximum Willing to Pay	Regional Bidder	Maximum Willing to Pay	National Bidder	Maximum Willing to Pay
W1	20	E1	20	N1	35
W2	10	E2	10	N2	32

LIKELY FINAL BIDS IN AUCTIONS

Oral					Sealed Bid	
	West		East	Sum of Bids		Nation
W1	10.1	E1	10.1	20.2	N1	32.1
W2	Lose	E2	Lose	—	N2	Lose

N1 wins the license for the entire nation since its bid of 32.1 exceeds the sum of W1's and E1's final bids of 20.2, despite the fact that N1 has a lower value for the license (35) than W1 and E1 combined (40).

FIGURE 2



West		East		Nation = West + East	
Regional Bidder	Maximum Willing to Pay	Regional Bidder	Maximum Willing to Pay	National Bidder	Maximum Willing to Pay
W1	20	E1	20	N1	45
W2	10	E2	10	N2	42

LIKELY FINAL BIDS IN AUCTIONS

Oral					Sealed Bid	
	West		East	Sum of Bids		Nation
W1	10.1	E1	10.1	20.2	N1	42.1
W2	Lose	E2	Lose	—	N2	Lose

N1 wins the license for the entire nation since its bid of 42.1 exceeds the sum of W1's and E1's final bids of 20.2. Since N1 is the highest-value bidder, in this case, combination bidding produces an efficient outcome.

We Propose a Simultaneous Auction Design

The details of the proposed design are as follows:

- All MTA and BTA spectrum blocks auctioned simultaneously.
- Sealed bids collected each afternoon.
- Minimum bid increment of five percent.
- Information returned each morning, including top two bidders' names and bids.
- Auction tentatively closes when no new bids are placed for any licenses.
- Deposits required on the day of tentative closing.
- If no bidder defaults, the auction closes.
- If a bidder defaults, the bidder is disqualified for all licenses and forfeits its initial deposits and bidding resumes on all licenses.

Variation

- If software is available, a continuous version of these rules could be implemented.

Such a Simultaneous Auction Is Better

A design using simultaneous auctions of all licenses is feasible, unbiased and better promotes the value maximization objective.

- Feasibility
  - does not require untested new software
  - allows bidders time for careful deliberation
- Unbiasedness
  - allows bidders to implement local, regional and national strategies
  - does not favor "early" or "late" bidders
- Value Maximization
  - minimizes uncertainty and guesswork
  - provides price information needed for proper decisions
  - allows bidders to implement back-up strategies